Behavioral Risk Factor Surveillance System

2022 Summary Data Quality Report
August 8, 2023

Table of Contents

Introduction

The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based, CDC-assisted health-data collection project and partnership of state health departments, CDC's Division of Population Health, and other CDC programs and offices. It comprises telephone surveys conducted by the health departments of all 50 states, the District of Columbia, Puerto Rico, the US Virgin Islands, and Guam.

This *Summary Data Quality Report* presents detailed descriptions of the 2022 BRFSS calling outcomes and call summary information for each of the states and territories that participated. All BRFSS public-use data are collected by landline telephone and cellular telephone to produce a single data set aggregated from the 2022 BRFSS territorial- and state-level data sets. The variables and outcomes provided in this document are applicable to a combined data set of responses from participants using landline telephones and cellular telephones within each of the states and territories.

The inclusion of data from cellular telephone interviews in the BRFSS public release data set has been standard protocol since 2011. In many respects, 2011 was a year of change—both in BRFSS's approach and methodology. As the results of cellular telephone interviews were added in 2011, so were new weighting procedures that could accommodate the inclusion of new weighting variables. Data users should note that weighting procedures are likely to affect trend lines when comparing BRFSS data collected before and after 2011. Because of these changes, users are advised NOT to make direct comparisons with pre-2011 data, and instead, should begin new trend lines with that year. Details of changes beginning with the 2011 BRFSS are provided in the *Morbidity and Mortality Weekly Report* (*MMWR*), which highlights weighting and coverage effects on trend lines.[1] Each year of data collection since 2011 has included a larger percentage of calls from the cell phone sample. In 2022, a majority of the BRFSS interviews were conducted by cell phone. The annual code books provide information on the number and percentage of calls conducted by landline and cell phone by year.

The measures presented in this document are designed to summarize the quality of the 2022 BRFSS survey data. Response rates, cooperation rates, and refusal rates for BRFSS are calculated using standards set by the American Association for Public Opinion Research (AAPOR).[2] The BRFSS has calculated 2022 response rates using AAPOR Response Rate #4.[3]

Based on the AAPOR guidelines, response rate calculations include assumptions of eligibility among potential respondents or households that are not interviewed. Changes in the geographic distribution of cellular telephone numbers by telephone companies and the portability of landline telephone numbers are likely to make it more difficult than in the past to determine which telephone numbers are out-of-sample and which telephone numbers represent likely households. The BRFSS calculates likely households and eligible persons using the proportions of eligible households/persons among all phone numbers where eligibility has been determined. This eligibility factor appears in calculations of response, cooperation, resolution, and refusal rates.

Interpretation of BRFSS Response Rates

Because this report reflects the inclusion of BRFSS cellular telephone interviews, contextual information on cellular telephone response rates is provided below. Although cellular telephone response rates are generally lower than landline telephone response rates across most surveys, the BRFSS has achieved a cellular telephone

response rate that compares favorably with other similar surveys (Table 1). Moreover, since the initial inclusion of cell phone respondents, the proportion of the sample that is interviewed by cell phone has increased. In many states, cell phone respondents represent the majority of the sample. Since 2012, median BRFSS cell phone response rates have risen slightly. Overall, BRFSS response rates have leveled off in the past few years, with landline rates declining and cell phone rates improving. In 2022, the screening of eligible landline phone numbers has improved—which may account for a slight improvement in the proportion of numbers identified as working phone numbers in the landline sample. This change would not necessarily increase response rates. The leveling-off of telephone survey response rates is noted for other federal surveys as well—although in one report, authors noted that the accelerated declines in response rates seen in 6 other surveys were not seen in BRFSS and one other survey.[4]

Table 1.
Examples of Survey Response Rates

Survey	Year(s)	Overall Response Rates
[a] California Health Interview Survey (CHIS)	2019	11.2%
[b] National Health Interview Survey, 2019.	2019	61.1%
[c] Am Time Use Survey	2022	35.8%
BRFSS [d]	2022	45.0%

[a] CHIS 2019 Report 4 Response Rates:
California Health Interview Survey. *CHIS 2019 Methodology Series: Report 4 - Response Rates*. Los Angeles, CA: UCLA Center for Health Policy Research, 2020. P1-11. http://healthpolicy.ucla.edu/chis/design/Documents/CHIS_2019_MethodologyReport4_ResponseRates.pdf. Accessed 8 August 2023.

[b] National Center for Health Statistics. National Health Interview Survey, 2019. Public-use data file and documentation. Survey Description Document at https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2019/srvydesc-508.pdf p19. Accessed 8 August 2023

[c] Am Time Use Survey
Bureau of Labor Statistics (sponsor)/by the U.S. Census Bureau. American Time Use Survey User's Guide, 2022 *Understanding ATUS 2003 to 2022.* https://www.bls.gov/tus/atususersguide.pdf P14, table 3.3. Accessed 8 August 2023.

[d] BRFSS response rates are presented here as median rates for all states and territories.

The following tables present landline telephone and cellular telephone calling outcomes and rates. The BRFSS cellular telephone survey was collected in a manner similar to that of the BRFSS landline telephone survey. One important difference, however, is that interviews conducted by landline telephones include random selection among adults within households, while cellular telephone interviews are conducted with adults who are contacted on personal (nonbusiness) cellular telephones. The report presents data on three general types of measure by state:

1. Call outcome measures, including response rates, which are based on landline telephone disposition codes.

2. Call outcome measures, including response rates, which are based on cellular telephone disposition codes.

3. A weighted response rate, based on a combination of the landline telephone response rate with the cellular telephone response rate proportional to the total sample used to collect the data for a state.

For clarity, the BRFSS recommends that authors and researchers referencing BRFSS data quality include the following language, below. <mark>Note the places where authors should include information specific to their projects.</mark>

Response rates for BRFSS are calculated using standards set by the American Association for Public Opinion Research (AAPOR) Response Rate Formula #4 (Standard Definitions - AAPOR). The response rate is the number of respondents who completed the survey as a proportion of all eligible and likely-eligible people. The median survey response rate for all states, territories and Washington, DC, in 2022 was 45.1 and ranged from 22.8 to 66.8.[a] Response rates for states and territories included in this analysis had a median of [provide median] and ranged from [provide range],[b] For detailed information see the BRFSS Summary Data Quality Report [c]

---

[a] Response rates and ranges should reflect the year(s) included in the analyses.
[b] Response rates for states selected for analysis should be included here. This sentence may be omitted if all states are used in the analysis.
[c] See the Summary Data Quality Report for the year(s) included in the analyses. The 2022 document is available at: https://www.cdc.gov/brfss/annual_data/2022/pdf/2022-sdqr-508.pdf.

BRFSS 2022 Call Outcome Measures and Response Rate Formulae

The calculations of calling-outcome rates are based on final disposition codes that are assigned after all calling attempts have been exhausted. The BRFSS may make up to 15 attempts to reach a respondent before assigning a final disposition code. In 2022, the BRFSS used a single set of disposition codes for both landline and cell phones, adapted from standardized AAPOR disposition codes for telephone surveys. A few disposition codes apply only to landline telephone or to cellular telephone sample numbers. For example, answering-device messages may confirm household eligibility for landline telephone numbers but are not used to determine eligibility of cellular telephone numbers. Disposition codes reflect whether interviewers have completed or partially completed an interview (1000 level codes), determined that the household was eligible without completing an interview (2000 level codes), determined that a household or respondent was ineligible (4000 level codes), or was unable to determine the eligibility of a household or respondent (3000 level codes). Partially completed interviews are those that have collected all information needed to weight responses (about 12 minutes into the survey questionnaire, not including time for eligibility screening). The table below illustrates the codes used by the BRFSS in 2022, and it notes the instances where codes are used only for landline telephone or cellular telephone sample numbers.

The Disposition Code Table below uses terms to define and categorize outcomes, which include the following:

- Respondent: A person who is contacted by an interviewer and who may be eligible for interview.
- Private residence: Persons residing in private residences or college housing are eligible. Persons living in group homes, military barracks or other living arrangements are not eligible. Persons living in vacation homes for 30 days or more are eligible. Eligibility is ascertained by asking each potential respondent whether they live in a private residence. If the respondent is unsure whether their residence qualifies, additional definitions of residences are provided.

- Landline telephone: A telephone that is used within a specific location, including traditional household telephones, Voice Over Internet Protocol (VOIP), and Internet phones connected to computers in a household.
- Cellular telephone: A mobile device that is not tied to a specific location for use.
- Selected respondent: A person who is eligible for interview. For the cellular telephone sample, a selected respondent is an adult associated with the phone number who lives in a private residence or college housing within the United States or territories covered by the BRFSS. For the landline telephone sample, a selected respondent is the person chosen for interview during the household enumeration section of the screening questions.
- Personal cellular telephone: A cellular telephone that is used for personal calls. Cellular telephones that are used for both personal and business calls may be categorized as personal telephones and persons contacted on these phones are eligible for interview. Persons using telephones that are exclusively for business use are not eligible for interview.

Table 2.
2022 Disposition Codes for Landline Telephones and Cellular Telephones

Category	Code	Description
Interviewed (1000-level codes)	1100	Completed interview
	1200	Partially completed interview
Eligible, Non-Interview (2000 level codes)	2111	Household level refusal (used for landline only)
	2112	Selected respondent refusal
	2120	Break off/termination within questionnaire
	2210	Selected respondent never available
	2320	Selected respondent physically or mentally unable to complete interview
	2330	Language barrier of selected respondent
Unknown Eligibility	3100	Unknown if housing unit
	3130	No answer
	3140	Answering device, unknown whether eligible
	3150	Telecommunication barrier (i.e. call blocking)
	3200	Household, not known if respondent eligible
	3322	Physical or mental impairment (household level)
	3330	Language barrier (household level)
	3700	On never-call list

Table 2.
2022 Disposition Codes for Landline Telephones and Cellular Telephones

Category	Code	Description
Not Eligible	4100	Out of sample
	4200	Fax/data/modem
	4300	Nonworking/disconnected number
	4400	Technological barrier (i.e., fast busy, phone circuit barriers)
	4430	Call forwarding/pager
	4460	Landline telephone number (used for cellular telephone only)
	4500	Non-residence/business
	4900	Miscellaneous, non-eligible

Factors affecting the distribution of disposition codes by state include differences in telephone systems, sample designs, surveyed populations, and data collection processes. Table 3 defines the categories of disposition codes used to calculate outcome and response rates illustrated in Tables 4A through 6.

Table 3.
Categories of 2022 Landline and Cellular Telephone Disposition Codes

Category	Disposition Code Definitions	Formulae Abbreviation
Completed Interviews	1100+1200	COIN
Eligible	1100+1200+2111+2112+2120+2210+2320+2330	ELIG
Contacted Eligible	1100+1200+2111+2112+2120+2210+2320+2330	CONELIG
Terminations and Refusals	2111+2112+2120	TERE
Ineligible Phone Numbers	All 4000 level disposition codes	INELIG
Unknown Whether Eligible	All 3000 level disposition codes	UNKELIG
Eligibility Factor	ELIG/(ELIG + INELIG)	E

The disposition codes are categorized according to the groups illustrated in Table 3 to produce rates of resolution, cooperation, completion, refusal, and response. In accordance with population surveillance

standards, the proportions of people who may have been eligible for interview, but who were not able to be interviewed, are accounted for in the formulae.

Eligibility Factor

E = ELIG/ (ELIG + INELIG)

The Eligibility Factor is the proportion of eligible phone numbers from among all sample numbers for which eligibility has been determined. The eligibility factor, therefore, provides a measure of eligibility that can be applied to sample numbers with unknown eligibility. The purpose of the eligibility factor is to estimate the proportion of the sample that is likely to be eligible. The eligibility factor is used in the calculations of refusal and response rates. Separate eligibility factors are calculated for landline telephones and cellular telephone samples for each state and territory.

Resolution Rate

((ELIG + INELIG) / (ELIG+INELIG+UNKELIG))*100

The Resolution Rate is the percentage of numbers in the total sample for which eligibility has been determined. The total number of eligible and ineligible sample phone numbers is divided by the total number of phone numbers in the entire sample. The result is multiplied by 100 to calculate the percentage of the sample for which eligibility is determined. Separate resolution rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Interview Completion Rate

(COIN / (COIN + TERE)) * 100

The Interview Completion Rate is the rate of completed interviews among all respondents who have been determined to be eligible and selected for interviewing. The numerator is the number of complete and partially completed interviews. This number is divided by the number of completed interviews, partially completed interviews, and all break offs, refusals, and terminations. The result is multiplied by 100 to provide the percentage of completed interviews among eligible respondents who are contacted by interviewers. Separate interview completion rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Cooperation Rate

(COIN / CONELIG) *100

The AAPOR Cooperation Rate is the number of complete and partial complete interviews divided by the number of contacted and eligible respondents. The BRFSS Cooperation Rate follows the guidelines of AAPOR Cooperation Rate #2. Separate cooperation rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Refusal Rate

(TERE / (ELIG + (E * UNKELIG))) * 100

The BRFSS Refusal Rate is the proportion of all eligible respondents who refused to complete an interview or terminated an interview prior to the threshold required to be considered a partial interview. Refusals and terminations (TERE) are in the numerator, and the denominator includes all eligible numbers and a proportion of the numbers with unknown eligibility. The proportion of numbers with unknown eligibility is determined by

the eligibility factor (E as described above). The result is then multiplied by 100 to provide a percentage of refusals among all eligible and likely to be eligible numbers in the sample. Separate refusal rates are calculated for landline telephone and cellular telephone samples for each state and territory.

Response Rate

(COIN / ((ELIG + (E * UNKELIG))) * 100

A Response Rate is an outcome rate with the number of complete and partial interviews in the numerator and an estimate of the number of eligible units in the sample in the denominator. The BRFSS Response Rate calculation assumes that the unresolved numbers contain the same percentage of eligible households or eligible personal cell phones as the records whose eligibility or ineligibility are determined. The BRFSS Response Rate follows the guidelines for AAPOR Response Rate #4. It also is similar to the BRFSS CASRO Rates reported prior to 2011. Separate eligibility factors are calculated for landline telephone and cellular telephone samples for each state and territory and a combined Response Rate for landline telephone and cellular telephone also is calculated. The combined landline telephone and cellular telephone response rate is generated by weighting to the respective size of the two samples. The total sample equals the landline telephone sample plus cellular telephone sample. The proportion of each sample is calculated using the total sample as the denominator. The formulae for the proportions of the sample are found below:

P1 = TOTAL LANDLINE SAMPLE /
(TOTAL LANDLINE SAMPLE + TOTAL CELL PHONE SAMPLE);

P2 = TOTAL CELL PHONE SAMPLE /
(TOTAL LANDLINE SAMPLE + TOTAL CELL PHONE SAMPLE);

The formula for the Combined Landline Telephone and Cellular Telephone Weighted Response Rate, therefore, is described below:

COMBINED RESPONSE RATE=
(P1 * LANDLINE RESPONSE RATE) + (P2 * CELL PHONE RESPONSE RATE).

Tables of Outcomes and Rates by State

The tables on the following pages illustrate calling outcomes in categories of eligibility, rates of cooperation, refusal, resolution, and response by landline telephone and cellular telephone samples.

➢ Tables 4A and 4B provide information on the size of the sample and the numbers and percentages of completed interviews, cooperation rates, terminations and refusals, and contacts with eligible households by state and territory.

➢ Tables 5A and 5B provide information on the number and percentage of landline telephone and cellular telephone sample numbers that are eligible, ineligible, and of unknown eligibility.

➢ Table 6 provides response rates for landline telephone samples, cellular telephone samples, and combined samples.

Table 4A. Landline Sample.
Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

| | COIN | | TERE | | CONELIG | | COOP | |
State	N	%	N	%	N	%	%	Total Sample
AL	1,211	2.3	539	1.0	1,848	3.5	65.5	53,447
AK	1,159	1.4	639	0.8	2,021	2.4	57.3	82,550
AZ	2,149	0.2	939	0.1	3,992	0.4	53.8	902,430
AR	1,305	1.9	628	0.9	2,251	3.3	58.0	67,770
CA	1,072	0.2	600	0.1	2,262	0.4	47.4	506,640
CO	651	3.8	190	1.1	1,008	5.9	64.6	17,070
CT	1,072	2.1	638	1.3	2,072	4.1	51.7	50,010
DE	857	0.6	389	0.3	1,586	1.1	54.0	145,890
DC	801	2.0	479	1.2	1,464	3.6	54.7	40,110
FL	3,282	1.2	2,685	1.0	6,962	2.6	47.1	268,740
GA	2,701	1.2	2,600	1.2	6,265	2.8	43.1	220,290
HI	1,666	2.0	651	0.8	2,857	3.5	58.3	81,720
ID	850	1.5	151	0.3	1,021	1.8	83.3	57,061
IL	342	1.1	160	0.5	589	1.9	58.1	31,290
IN	2,109	1.5	1,556	1.1	4,386	3.1	48.1	143,280
IA	1,613	3.5	603	1.3	2,486	5.4	64.9	46,200
KS	3,114	2.5	1,415	1.1	5,054	4.0	61.6	125,100
KY	845	2.0	219	0.5	1,112	2.7	76.0	41,490
LA	1,261	1.0	986	0.8	2,392	1.8	52.7	130,502
ME	4,053	1.7	462	0.2	4,658	1.9	87.0	240,565
MD	4,048	1.5	2,635	1.0	8,072	3.1	50.1	262,200
MA	1,778	1.2	395	0.3	2,236	1.6	79.5	142,760
MI	2,708	2.8	1,365	1.4	4,620	4.8	58.6	96,780
MN	1,906	0.9	781	0.4	3,355	1.5	56.8	217,980
MS	315	1.8	50	0.3	368	2.1	85.6	17,730
MO	1,703	2.3	490	0.7	2,465	3.3	69.1	74,239

Table 4A. Landline Sample.
Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

	COIN		TERE		CONELIG		COOP	
State	N	%	N	%	N	%	%	Total Sample
MT	1,956	1.8	708	0.7	2,965	2.8	66.0	107,310
NE	2,402	2.8	854	1.0	3,672	4.2	65.4	86,760
NV	533	1.1	357	0.7	1,040	2.1	51.3	48,625
NH	3,375	3.7	1,014	1.1	5,097	5.6	66.2	91,290
NJ	895	1.5	651	1.1	1,924	3.2	46.5	59,610
NM	1,450	2.1	740	1.1	2,444	3.5	59.3	69,329
NY	4,516	1.9	3,576	1.5	9,900	4.2	45.6	234,300
NC	427	2.2	175	0.9	692	3.6	61.7	19,470
ND	1,239	3.1	217	0.5	1,538	3.9	80.6	39,636
OH	3,128	0.4	1,415	0.2	5,816	0.7	53.8	864,330
OK	1,116	1.8	388	0.6	1,713	2.7	65.1	63,360
OR	500	2.1	63	0.3	584	2.5	85.6	23,444
PA	418	2.0	144	0.7	617	2.9	67.7	21,240
RI	1,172	2.2	629	1.2	2,124	4.0	55.2	53,070
SC	3,014	2.0	2,464	1.6	6,356	4.2	47.4	151,200
SD	1,620	1.8	94	0.1	1,734	1.9	93.4	90,497
TN	845	1.3	585	0.9	1,520	2.3	55.6	66,513
TX	2,622	0.7	1,982	0.6	5,717	1.6	45.9	353,370
UT	1,330	2.9	466	1.0	2,152	4.7	61.8	45,810
VT	1,947	1.5	995	0.7	3,541	2.6	55.0	134,190
VA	3,840	0.6	1,635	0.3	7,053	1.1	54.4	620,070
WA	5,417	2.8	2,440	1.3	8,861	4.6	61.1	191,580
WV	1,714	4.1	721	1.7	2,667	6.4	64.3	41,496
WI	3,226	0.5	1,377	0.2	5,864	0.9	55.0	653,610
WY	1,229	0.8	443	0.3	2,042	1.3	60.2	162,690
GU	645	1.6	509	1.2	1,478	3.6	43.6	41,100

Table 4A. Landline Sample.
Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

	COIN		TERE		CONELIG		COOP	
State	**N**	**%**	**N**	**%**	**N**	**%**	**%**	**Total Sample**
PR	709	2.1	166	0.5	1,074	3.1	66.0	34,201
VI	202	0.5	117	0.3	337	0.8	59.9	40,500
Minimum	202	0.2	50	0.1	337	0.4	43.1	17,070
Maximum	5,417	4.1	3,576	1.7	9,900	6.4	93.4	902,430
Mean	1,779	1.8	874	0.8	3,110	2.9	60.8	156,897
Median	1,390	1.8	629	0.8	2,257	2.9	58.5	82,135

Table 4B. Cell Phone Sample.
Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

| | COIN | | TERE | | CONELIG | | COOP | |
State	N	%	N	%	N	%	%	Total Sample
AL	3,164	3.3	564	0.6	3,740	3.9	84.6	96,000
AK	4,588	2.0	846	0.4	5,561	2.4	82.5	233,610
AZ	7,886	1.0	1,366	0.2	9,426	1.2	83.7	797,970
AR	4,022	2.1	978	0.5	5,250	2.7	76.6	192,810
CA	9,115	1.1	1,938	0.2	11,333	1.3	80.4	861,120
CO	8,826	3.6	1,571	0.6	10,682	4.4	82.6	243,213
CT	9,225	2.2	2,431	0.6	12,174	2.9	75.8	416,160
DE	3,221	1.1	577	0.2	3,895	1.3	82.7	291,240
DC	2,204	2.4	602	0.6	2,915	3.1	75.6	93,330
FL	9,125	2.0	2,788	0.6	12,503	2.7	73.0	464,040
GA	6,393	1.8	2,002	0.6	8,982	2.6	71.2	348,840
HI	5,957	7.1	984	1.2	7,085	8.5	84.1	83,760
ID	5,425	2.5	373	0.2	5,821	2.7	93.2	213,873
IL	3,383	2.3	752	0.5	4,211	2.8	80.3	148,440
IN	8,574	2.8	1,834	0.6	11,062	3.6	77.5	307,740
IA	7,673	5.2	944	0.6	8,709	6.0	88.1	146,250
KS	8,161	3.3	1,393	0.6	9,728	4.0	83.9	245,069
KY	3,137	4.0	380	0.5	3,540	4.6	88.6	77,536
LA	4,367	1.8	1,448	0.6	5,873	2.4	74.4	246,587
ME	6,761	2.4	433	0.2	7,285	2.6	92.8	283,615
MD	13,153	2.6	3,279	0.6	16,980	3.3	77.5	514,740
MA	9,075	1.9	1,088	0.2	10,224	2.1	88.8	476,155
MI	7,356	2.4	1,970	0.6	9,639	3.1	76.3	312,660
MN	14,705	1.5	1,993	0.2	17,043	1.7	86.3	990,810
MS	3,930	2.6	622	0.4	4,588	3.0	85.7	150,870
MO	5,762	4.5	901	0.7	6,852	5.3	84.1	129,319

Table 4B. Cell Phone Sample.
Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

	COIN		TERE		CONELIG		COOP	
State	N	%	N	%	N	%	%	Total Sample
MT	5,289	2.7	492	0.3	5,830	3.0	90.7	195,276
NE	5,147	2.7	804	0.4	6,092	3.2	84.5	193,300
NV	2,678	2.4	587	0.5	3,348	3.0	80.0	110,413
NH	3,554	2.9	609	0.5	4,267	3.5	83.3	121,170
NJ	7,529	1.6	1,986	0.4	10,113	2.1	74.4	471,660
NM	3,312	4.6	593	0.8	3,948	5.5	83.9	71,524
NY	13,643	2.2	4,717	0.8	19,611	3.2	69.6	608,070
NC	3,569	4.5	558	0.7	4,178	5.3	85.4	78,600
ND	3,067	3.3	414	0.5	3,523	3.8	87.1	91,772
OH	13,564	1.1	2,327	0.2	16,128	1.4	84.1	1191090
OK	4,635	3.4	976	0.7	5,679	4.1	81.6	138,341
OR	5,105	2.5	267	0.1	5,400	2.6	94.5	206,262
PA	3,701	3.2	641	0.6	4,398	3.8	84.2	115,307
RI	5,006	3.2	1,110	0.7	6,494	4.1	77.1	158,790
SC	7,177	2.5	1,681	0.6	9,305	3.2	77.1	292,020
SD	6,010	1.7	263	0.1	6,303	1.8	95.4	358,757
TN	4,251	1.6	1,218	0.5	5,533	2.1	76.8	261,836
TX	10,986	2.3	2,495	0.5	14,417	3.0	76.2	485,700
UT	8,679	5.3	1,279	0.8	10,804	6.6	80.3	164,010
VT	6,779	3.2	1,066	0.5	8,065	3.8	84.1	211,800
VA	6,352	1.5	820	0.2	7,276	1.7	87.3	417,000
WA	21,269	5.1	3,535	0.8	25,351	6.1	83.9	418,440
WV	3,292	3.3	377	0.4	3,684	3.7	89.4	100,184
WI	8,233	1.3	1,223	0.2	9,612	1.5	85.7	652,620
WY	3,060	1.3	341	0.1	3,431	1.5	89.2	228,810
GU	1,623	3.8	327	0.8	2,025	4.8	80.1	42,270

Table 4B. Cell Phone Sample.
Completions, Terminations and Refusals, Contacted Eligible Households and Total Sample by State

	COIN		TERE		CONELIG		COOP	
State	N	%	N	%	N	%	%	Total Sample
PR	4,938	11.8	237	0.6	5,224	12.5	94.5	41,671
VI	1,487	2.6	324	0.6	1,836	3.3	81.0	56,340
Minimum	1,487	1.0	237	0.1	1,836	1.2	69.6	41,671
Maximum	21,269	11.8	4,717	1.2	25,351	12.5	95.4	1191090
Mean	6,465	2.9	1,210	0.5	7,907	3.5	82.8	293,496
Median	5,594	2.5	960	0.5	6,399	3.1	83.8	221,342

Table 5A. Landline Sample.
Categories of Eligibility by State (Landline Only).

State	ELIG		INELIG		UNKELIG	
	N	%	N	%	N	%
AL	1,848	3.5	40,396	75.6	11,203	21.0
AK	2,021	2.4	72,715	88.1	7,814	9.5
AZ	3,992	0.4	727,985	80.7	170,453	18.9
AR	2,251	3.3	54,744	80.8	10,775	15.9
CA	2,262	0.4	389,140	76.8	115,238	22.7
CO	1,008	5.9	13,039	76.4	3,023	17.7
CT	2,072	4.1	34,925	69.8	13,013	26.0
DE	1,586	1.1	86,916	59.6	57,388	39.3
DC	1,464	3.6	30,286	75.5	8,360	20.8
FL	6,962	2.6	212,333	79.0	49,445	18.4
GA	6,265	2.8	169,663	77.0	44,362	20.1
HI	2,857	3.5	58,855	72.0	20,008	24.5
ID	1,021	1.8	46,733	81.9	9,307	16.3
IL	589	1.9	23,810	76.1	6,891	22.0
IN	4,386	3.1	114,932	80.2	23,962	16.7
IA	2,486	5.4	34,698	75.1	9,016	19.5
KS	5,054	4.0	98,593	78.8	21,453	17.1
KY	1,112	2.7	30,752	74.1	9,626	23.2
LA	2,392	1.8	100,128	76.7	27,982	21.4
ME	4,658	1.9	172,109	71.5	63,798	26.5
MD	8,072	3.1	189,477	72.3	64,651	24.7
MA	2,236	1.6	98,056	68.7	42,468	29.7
MI	4,620	4.8	73,311	75.8	18,849	19.5
MN	3,355	1.5	156,742	71.9	57,883	26.6
MS	368	2.1	14,154	79.8	3,208	18.1
MO	2,465	3.3	57,910	78.0	13,864	18.7
MT	2,965	2.8	76,094	70.9	28,251	26.3

Table 5A. Landline Sample.
Categories of Eligibility by State (Landline Only).

State	ELIG		INELIG		UNKELIG	
	N	%	N	%	N	%
NE	3,672	4.2	65,125	75.1	17,963	20.7
NV	1,040	2.1	37,587	77.3	9,998	20.6
NH	5,097	5.6	63,139	69.2	23,054	25.3
NJ	1,924	3.2	42,436	71.2	15,250	25.6
NM	2,444	3.5	54,348	78.4	12,537	18.1
NY	9,900	4.2	161,626	69.0	62,774	26.8
NC	692	3.6	13,709	70.4	5,069	26.0
ND	1,538	3.9	28,660	72.3	9,438	23.8
OH	5,816	0.7	642,621	74.3	215,893	25.0
OK	1,713	2.7	51,668	81.5	9,979	15.7
OR	584	2.5	18,963	80.9	3,897	16.6
PA	617	2.9	14,295	67.3	6,328	29.8
RI	2,124	4.0	37,911	71.4	13,035	24.6
SC	6,356	4.2	113,290	74.9	31,554	20.9
SD	1,734	1.9	73,938	81.7	14,825	16.4
TN	1,520	2.3	47,861	72.0	17,132	25.8
TX	5,717	1.6	281,014	79.5	66,639	18.9
UT	2,152	4.7	36,094	78.8	7,564	16.5
VT	3,541	2.6	110,660	82.5	19,989	14.9
VA	7,053	1.1	443,438	71.5	169,579	27.3
WA	8,861	4.6	144,757	75.6	37,962	19.8
WV	2,667	6.4	26,938	64.9	11,891	28.7
WI	5,864	0.9	484,976	74.2	162,770	24.9
WY	2,042	1.3	119,629	73.5	41,019	25.2
GU	1,478	3.6	8,330	20.3	31,292	76.1
PR	1,074	3.1	28,383	83.0	4,744	13.9
VI	337	0.8	37,917	93.6	2,246	5.5

Table 5A. Landline Sample.
Categories of Eligibility by State (Landline Only).

State	ELIG		INELIG		UNKELIG	
	N	**%**	**N**	**%**	**N**	**%**
Minimum	337	0.4	8,330	20.3	2,246	5.5
Maximum	9,900	6.4	727,985	93.6	215,893	76.1
Mean	3,110	2.9	117,922	74.6	35,865	22.5
Median	2,257	2.9	60,997	75.5	17,548	20.9

Table 5B. Cell Phone Sample.
Categories of Eligibility by State (Cell Phone Only).

State	ELIG		INELIG		UNKELIG	
	N	%	N	%	N	%
AL	3,740	3.9	45,551	47.4	46,709	48.7
AK	5,561	2.4	170,734	73.1	57,315	24.5
AZ	9,426	1.2	419,059	52.5	369,485	46.3
AR	5,250	2.7	114,783	59.5	72,777	37.7
CA	11,333	1.3	373,182	43.3	476,605	55.3
CO	10,682	4.4	116,078	47.7	116,453	47.9
CT	12,174	2.9	204,273	49.1	199,713	48.0
DE	3,895	1.3	133,208	45.7	154,137	52.9
DC	2,915	3.1	50,316	53.9	40,099	43.0
FL	12,503	2.7	234,509	50.5	217,028	46.8
GA	8,982	2.6	190,241	54.5	149,617	42.9
HI	7,085	8.5	27,761	33.1	48,914	58.4
ID	5,821	2.7	99,548	46.5	108,504	50.7
IL	4,211	2.8	78,550	52.9	65,679	44.2
IN	11,062	3.6	152,536	49.6	144,142	46.8
IA	8,709	6.0	84,474	57.8	53,067	36.3
KS	9,728	4.0	139,780	57.0	95,561	39.0
KY	3,540	4.6	37,756	48.7	36,249	46.8
LA	5,873	2.4	109,749	44.5	130,965	53.1
ME	7,285	2.6	131,522	46.4	144,808	51.1
MD	16,980	3.3	272,161	52.9	225,599	43.8
MA	10,224	2.1	256,720	53.9	209,211	43.9
MI	9,639	3.1	197,878	63.3	105,143	33.6
MN	17,043	1.7	468,760	47.3	505,007	51.0
MS	4,588	3.0	80,684	53.5	65,598	43.5
MO	6,852	5.3	67,240	52.0	55,227	42.7
MT	5,830	3.0	100,202	51.3	89,244	45.7

Table 5B. Cell Phone Sample.
Categories of Eligibility by State (Cell Phone Only).

State	ELIG		INELIG		UNKELIG	
	N	%	N	%	N	%
NE	6,092	3.2	116,005	60.0	71,203	36.8
NV	3,348	3.0	51,789	46.9	55,276	50.1
NH	4,267	3.5	62,686	51.7	54,217	44.7
NJ	10,113	2.1	234,773	49.8	226,774	48.1
NM	3,948	5.5	42,543	59.5	25,033	35.0
NY	19,611	3.2	278,885	45.9	309,574	50.9
NC	4,178	5.3	36,019	45.8	38,403	48.9
ND	3,523	3.8	56,686	61.8	31,563	34.4
OH	16,128	1.4	615,763	51.7	559,199	46.9
OK	5,679	4.1	70,138	50.7	62,524	45.2
OR	5,400	2.6	91,144	44.2	109,718	53.2
PA	4,398	3.8	59,829	51.9	51,080	44.3
RI	6,494	4.1	69,065	43.5	83,231	52.4
SC	9,305	3.2	148,808	51.0	133,907	45.9
SD	6,303	1.8	234,450	65.4	118,004	32.9
TN	5,533	2.1	117,889	45.0	138,414	52.9
TX	14,417	3.0	228,084	47.0	243,199	50.1
UT	10,804	6.6	86,951	53.0	66,255	40.4
VT	8,065	3.8	103,252	48.7	100,483	47.4
VA	7,276	1.7	222,598	53.4	187,126	44.9
WA	25,351	6.1	190,047	45.4	203,042	48.5
WV	3,684	3.7	60,242	60.1	36,258	36.2
WI	9,612	1.5	317,616	48.7	325,392	49.9
WY	3,431	1.5	155,764	68.1	69,615	30.4
GU	2,025	4.8	16,364	38.7	23,881	56.5
PR	5,224	12.5	21,122	50.7	15,325	36.8
VI	1,836	3.3	38,606	68.5	15,898	28.2

Table 5B. Cell Phone Sample.
Categories of Eligibility by State (Cell Phone Only).

State	ELIG		INELIG		UNKELIG	
	N	%	N	%	N	%
Minimum	1,836	1.2	16,364	33.1	15,325	24.5
Maximum	25,351	12.5	615,763	73.1	559,199	58.4
Mean	7,907	3.5	149,711	51.8	135,879	44.7
Median	6,399	3.1	115,394	50.8	98,022	46.1

Table 6. Response Rates for Landline and Cell Phone Samples

State	Landline Response Rate	Cell Phone Response Rate	Combined Response Rate
AL	51.8	43.4	46.4
AK	51.9	62.3	59.6
AZ	43.7	44.9	44.3
AR	48.8	47.7	48.0
CA	36.6	35.9	36.2
CO	53.1	43.1	43.7
CT	38.3	39.4	39.3
DE	32.8	38.9	36.9
DC	43.3	43.1	43.2
FL	38.5	38.8	38.7
GA	34.4	40.6	38.2
HI	44.0	35.0	39.5
ID	69.7	45.9	50.9
IL	45.3	44.8	44.9
IN	40.0	41.2	40.8
IA	52.2	56.1	55.2
KS	51.0	51.2	51.1
KY	58.4	47.2	51.1
LA	41.4	34.9	37.1
ME	63.9	45.4	53.9
MD	37.8	43.5	41.6
MA	55.9	49.8	51.2
MI	47.2	50.7	49.8
MN	41.7	42.3	42.2
MS	70.1	48.4	50.7
MO	56.2	48.2	51.1

Table 6. Response Rates for Landline and Cell Phone Samples

State	Landline Response Rate	Cell Phone Response Rate	Combined Response Rate
MT	48.6	49.3	49.0
NE	51.9	53.4	52.9
NV	40.7	39.9	40.2
NH	49.5	46.0	47.5
NJ	34.6	38.7	38.2
NM	48.6	54.5	51.6
NY	33.4	34.2	33.9
NC	45.6	43.7	44.1
ND	61.4	57.1	58.4
OH	40.3	44.6	42.8
OK	54.9	44.7	47.9
OR	71.4	44.2	47.0
PA	47.6	46.9	47.0
RI	41.6	36.7	37.9
SC	37.5	41.8	40.3
SD	78.1	64.0	66.8
TN	41.3	36.2	37.2
TX	37.2	38.0	37.7
UT	51.6	47.9	48.7
VT	46.8	44.2	45.2
VA	39.6	48.1	43.0
WA	49.0	43.2	45.0
WV	45.9	57.0	53.7
WI	41.3	42.9	42.1
WY	45.0	62.1	55.0
GU	10.4	34.9	22.8

Table 6. Response Rates for Landline and Cell Phone Samples

State	Landline Response Rate	Cell Phone Response Rate	Combined Response Rate
PR	56.9	59.8	58.5
VI	56.6	58.1	57.5
Minimum	10.4	34.2	22.8
Maximum	78.1	64.0	66.8
Mean	47.3	45.8	45.9
Median	46.3	44.7	45.1

References

1. Pierannunzi C, Town M, Garvin W, Shaw F, Balluz L. Methodologic changes in the Behavioral Risk Factor Surveillance System in 2011 and potential effects on prevalence estimates. *MMWR*.2012; 61(22):410-413. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6122a3.htm. Accessed 8 August 2023.

2. The American Association for Public Opinion Research. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys website http://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf. Accessed 8 August 2023.

3. The American Association for Public Opinion Research. *Response Rates: An Overview*. https://aapor.org/publications-resources/education-resources/response-rates/ . Accessed 8 August 2023

4. Czajka JL, Beyler A. Declining Response Rates in Federal Surveys: Trends and Implications (2016). https://aspe.hhs.gov/system/files/pdf/255531/Decliningresponserates.pdf. pviii. Accessed 8 August 2023.